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FLOOD INSURANCE STUDY

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CITY OF AMAGON, ARKANSAS
JACKSON COUNTY

OCTOBER 1, 1980

federal emergency management agency
federal insurance administration

COMMUNITY NUMBER - 050097

FEMA 209

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FLOOD INSURANCE STUDY
CITY OF AMAGON, ARKANSAS

1.0 INTRODUCTION

1.1 Purpose of Study

The purpose of this Flood Insurance Study is to investigate the existence and severity of flood hazards in the City of Amagon, Jackson County, Arkansas, and to aid in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Initial use of the information will be to convert the City of Amagon to the regular program of flood insurance by the Federal Insurance Administration (FIA). Further use of the information will be made by local and regional planners in their efforts to promote sound land use and flood plain development.

1.2 Coordination

The initial meeting of city officials with representatives of the FIA and the U.S. Army Corps of Engineers (COE) was held on July 7, 1977, to discuss streams to be studied, criteria for floodway widths, and the limits of the study.

On February 11, 1980, an intermediate meeting was held with city officials to present results of the study. Flood heights and extent of flooding were discussed.

On April 14, 1980, the results of the studies performed by the COE were reviewed at a final coordination meeting attended by representatives of the COE, FIA, and officials of the City of Amagon.

1.3 Authority and Acknowledgments

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968, as amended.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers District, Memphis, and completed by the U.S. Army Corps of Engineers District, Little Rock, for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA H-18-78, Project Order No. 9. This work, which was completed in November 1979, covered all significant flooding sources in the City of Amagon, Arkansas.

2.0 AREA STUDIED

2.1 Scope of Study

The flood insurance study includes the incorporated area of the City of Amagon, Arkansas. The area studied is shown on the Vicinity Map (Figure 1). Modified detailed studies were made for the Cache River.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction for the next five years, through November 1984.

2.2 Community Description

The City of Amagon is located in the eastern part of Jackson County, Arkansas, about 10 miles south and east of the City of Newport along State Highway 14 and near the Cache River. The 1976 estimated census of Amagon is 110 (Reference 1). There are a few commercial structures in the city and adjacent areas with development in Amagon almost entirely residential. The Cache River flows in a southernly direction about 2 miles west of the city. State Highway 14 runs east and west through Amagon and State Highway 37 extends south of the city. The land slopes gently to the west and has total relief within the corporate limits of about 5 feet.

The climate in this general area is humid with long hot summers and short mild winters. The average annual precipitation is about 50 inches with a maximum of 81 inches and a minimum of 22 inches. The average temperature is about 61.4 degrees F with 91 years of record. The maximum and minimum temperature observed at Newport, Arkansas, are 114 degrees F and - 14 degrees F, respectively. Flooding in Amagon results from intense local storms which may occur during any month of the year. However, most storms of this type occur generally during the spring of the year.

2.3 Principal Flood Problems

Flooding in Amagon occurs over most of the city except for a small area generally east of Duncan Street and along State Highway 14. The flooding occurs from overflow of the Coache River and a small amount of runoff from within the city. Because of the flat slopes, velocities are low and relatively no damage results from excessive velocities.

2.4 Flood Protection Measures

No effective flood protective works exist in or adjacent to the City of Amagon.

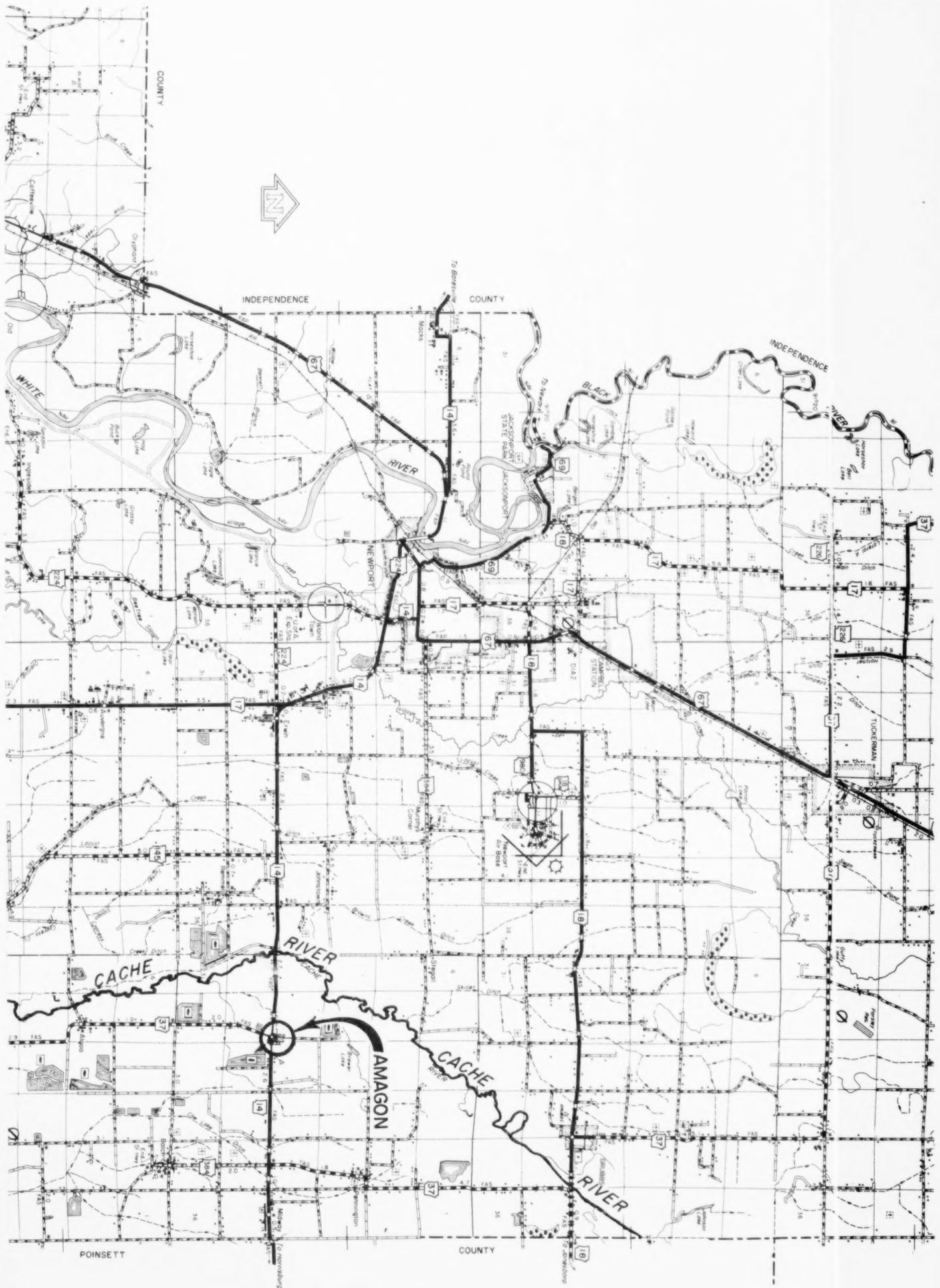


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF AMAGON, AR
(JACKSON CO.)

APPROXIMATE SCALE
0 1 2 3 4
MILES

VICINITY MAP

Roughness coefficients (Manning's "n") for the Cache River were estimated from conditions along the channel and overbank sections. The roughness coefficients ranged from 0.05 to 0.07 for the main channel and 0.09 to 0.125 for the overbank areas.

A flood profile was drawn showing computed water-surface elevations to an accurancy of 0.5 foot for the 10- and 100-year floods (Exhibit1). Water-surface elevations of floods of the selected recurrence intervals were developed using high water marks and the generalized equations developed by the COE, Memphis District.

The starting water-surface elevation was obtained from the White River at the confluence of the Cache River. The 100-year water-surface elevation on Cache River controls flood heights in the City of Amagon.

All elevations used in this study are referenced to National Geodetic Vertical Datum of 1929 (NGVD); the elevation reference marks used in this study are shown and described on the map.

Flood elevations in the City of Amagon may be raised by debris blockage of the streams in the study area. The hydraulic analyses for this study, however, are based only on the effect of unobstructed flow. The flood elevations as shown on the profiles are thus considered valid only if hydraulic structures in general remain unobstructed and do not fail.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

A prime purpose of the National Flood Insurance Program is to encourage state and local governments to adopt sound flood plain management programs. Each Flood Insurance Study, therefore, includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination the 100-year flood has been adopted by the FIA as the base flood for purposes of flood plain management measures. The 500-year flood is used to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100-year flood have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps at a scale of 1" = 500' with a contour interval of 5 feet (Reference 2).

The boundaries of the 100-year flood are shown on the Flood Insurance Rate Map (Exhibit 2). Small areas within the flood boundaries may lie above the flood elevations, and therefore, may not be subject to flooding.

Owing to the limitations of the map scale and/or lack of detailed topographic data, such areas are not shown.

4.2 Floodways

The floodway is the channel of a stream, plus any adjacent flood plain areas, that must be kept free from encroachment in order that the 100-year flood may be carried without substantial increases in flood heights.

No floodway was presented in this study as agreed upon at the initial coordination meeting.

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FIA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for each flooding source studied in detail affecting the City of Amagon.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

Average Difference Between 10- and 100-Year Floods	Variation
Less than 2 feet	0.5 foot

One reach meeting the above criteria was required for the stream studied as the flooding source in the City of Amagon. The location of this reach is shown on the Flood Profile (Exhibit 1).

5.2 Flood Hazard Factors

The FHF is the FIA device used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest one-half foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the City of Amagon was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations.

Zones A3:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHFs.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; also areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 2, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevation for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the City of Amagon is, for insurance purposes, the principal result of the Flood Insurance Study. This map (Exhibit 2) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FIA.

6.0 OTHER STUDIES

A flood insurance study for Grubbs, Arkansas, is now underway. All flood data along Cache River common to Amagon and the surrounding unincorporated area will be completely coordinated in respect to discharges, profiles, and areas inundated.

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3]
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Cache River Reach 1	0001	-1.5	*	*	015	A3	Varies

[1]FLOOD INSURANCE RATE MAP PANEL
[2]WEIGHTED AVERAGE
[3]ROUNDED TO NEAREST FOOT-SEE MAP

*Not determined

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF AMAGON, AR
(JACKSON CO.)

FLOOD INSURANCE ZONE DATA

CACHE RIVER

7.0 LOCATION OF DATA

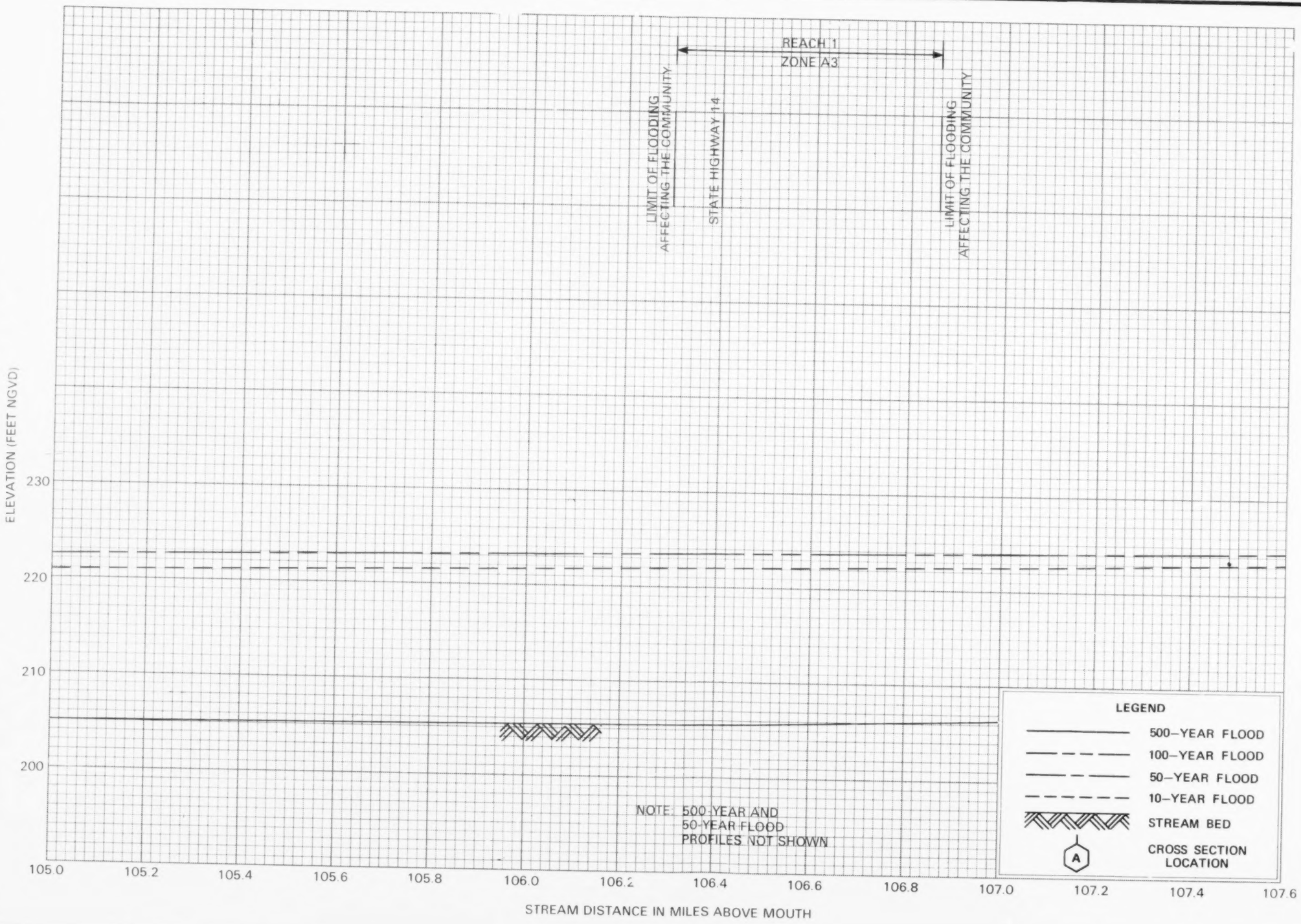
Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the Insurance and Mitigation Division, Federal Emergency Management Agency, Federal Center, Denton, Texas 76201.

8.0 BIBLIOGRAPHY AND REFERENCES

1. U.S. Department of Commerce , Bureau of the Census, Population Estimates and Projections, January 1979.

2. U.S. Department of Interior, Geological Survey, 7.5 Minute Series (Topographic) Maps, Scale: 1:24,000, Contour Interval 5 feet; Amagon, Arkansas (1965).

King, H.W. and Brater, E.F., King's Handbook of Hydraulics, 5th Edition, McGraw-Hill Book Company, 1963.



FLOOD PROFILES

CACHE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

CITY OF AMAGON, AR
(JACKSON CO.)

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